

CLAIMS

What is claimed is:

- 1 1. A method for traversing a firewall, comprising:
  - 2 initiating a first connection;
  - 3 evaluating the first connection for a response from a remote system indicating a
  - 4 successful first connection;
  - 5 initiating a second connection if a successful first connection is not established;
  - 6 evaluating the second connection for a response from a remote system indicating a
  - 7 successful second connection;
  - 8 initiating a third connection if a successful second connection is not established; and
  - 9 evaluating the third connection for a response from a remote system indicating a
  - 10 successful third connection.
- 1 2. The method of claim 1, wherein the first connection, the second connection, and the third
  - 2 connection is selected from the group consisting of Transmission Control Protocol (TCP)
  - 3 connection, User Datagram Protocol (UDP) connection, hypertext transfer protocol (HTTP)
  - 4 connection, hypertext transfer protocol (HTTP) connection via a proxy connection, and Internet
  - 5 Control Message Protocol (ICMP) connection.
- 1 3. The method according to claim 2, wherein initiating a TCP connection comprises initiating a
  - 2 TCP connection to a predefined address and port.

- 1 4. The method according to claim 2, wherein initiating a HTTP connection comprises initiating  
2 a HTTP connection to a predefined address using port 80.
- 1 5. The method according to claim 2, wherein initiating a HTTP connection via a proxy  
2 connection further comprises determining a likely proxy address and port.
- 1 6. The method according to claim 5, wherein determining a likely proxy address and port further  
2 comprises packet sniffing.
- 1 7. The method according to claim 6, wherein packet sniffing further comprises:  
2 sampling packets;  
3 extracting information from the sampled packets; and  
4 building a database of likely proxy addresses and ports.
- 1 8. The method according to claim 7, wherein extracting information from the sampled packets  
2 comprises extracting TCP port information.
- 1 9. The method according to claim 7, wherein extracting information from the sampled packets  
2 comprises examining TCP packets for HTTP data.
- 1 10. The method of claim 2 further comprising using Internet Protocol (IP).

1 11. The method according to claim 10, wherein initiating a HTTP connection via a proxy  
2 connection further comprises determining a likely proxy address by sampling packets and  
3 extracting IP addresses.

1 12. The method of claim 2 further comprising using Ethernet with the Transmission Control  
2 Protocol (TCP).

1 13. The method according to claim 12, wherein initiating a HTTP connection via a proxy  
2 connection further comprises determining a likely proxy address by sampling packets and  
3 extracting Ethernet addresses.

1 14. A machine-readable medium having stored thereon instructions, which when executed by a  
2 processor, causes said processor to perform the following:  
3 initiate a first connection;  
4 evaluate the first connection for a response from a remote system indicating a successful  
5 first connection;  
6 initiate a second connection if a successful first connection is not established;  
7 evaluate the second connection for a response from a remote system indicating a  
8 successful second connection;  
9 initiate a third connection if a successful second connection is not established; and  
10 evaluate the third connection for a response from a remote system indicating a successful  
11 third connection.

1 15. The machine-readable medium according to claim 14, further configuring said processor to  
2 perform the following:

3 implement the first connection, the second connection, and the third connection selected  
4 from the group consisting of Transmission Control Protocol (TCP) connection, User Datagram  
5 Protocol (UDP) connection, hypertext transfer protocol (HTTP) connection, hypertext transfer  
6 protocol (HTTP) proxy connection, and Internet Control Message Protocol (ICMP) connection.

1 16. The machine-readable medium according to claim 15, further configuring said processor to  
2 perform the following:

3 examine network traffic; and

4 build a database of parameters likely to allow establishment of a HTTP connection via a  
5 proxy connection.

1 17. A firewall traversal system comprising:

2 a main system coupled to storage;

3 a communication subsystem coupled to the main system and a communication medium;

4 a packet examining subsystem coupled to the communication subsystem; and

5 a database system coupled to the packet examining subsystem and the main system.

1 18. The system of claim 17, wherein the packet examining subsystem extracts port information.

1 19. The system of claim 18, wherein the packet examining subsystem extracts the port  
2 information based upon examining packet data content.

1 20. The system of claim 17, wherein the packet examining subsystem extracts address  
2 information.

1 21. The system of claim 20, wherein the packet examining subsystem extracts the address  
2 information based upon examining packet data content.

1 22. A method for traversing a firewall, comprising:  
2 means for initiating a first connection;  
3 means for evaluating the first connection for a response from a remote system indicating  
4 a successful first connection;  
5 means for initiating a second connection if a successful first connection is not  
6 established;  
7 means for evaluating the second connection for a response from a remote system  
8 indicating a successful second connection;  
9 means for initiating a third connection if a successful second connection is not  
10 established; and  
11 means for evaluating the third connection for a response from a remote system indicating  
12 a successful third connection.

1 23. The apparatus of claim 22, wherein means for initiating the first connection, means for  
2 initiating the second connection, and means for initiating the third connection further comprises  
3 means for initiating a connection selected from the group consisting of Transmission Control  
4 Protocol (TCP) connection, User Datagram Protocol (UDP) connection, hypertext transfer

- 5 protocol (HTTP) connection, hypertext transfer protocol (HTTP) proxy connection, and Internet  
6 Control Message Protocol (ICMP) connection.

- 1 24. The apparatus of claim 23, wherein means for initiating a HTTP connection via a proxy  
2 connection further comprises determining a likely proxy address by sniffing packets and  
3 extracting information from the packets.

- 1 25. The apparatus of claim 23, wherein means for initiating a HTTP connection via a proxy  
2 connection further comprises determining a likely proxy address by receiving information from a  
3 computer connected to the firewall.

- 1 26. The apparatus of claim 22, further comprising means for updating firewall traversal  
2 strategies.